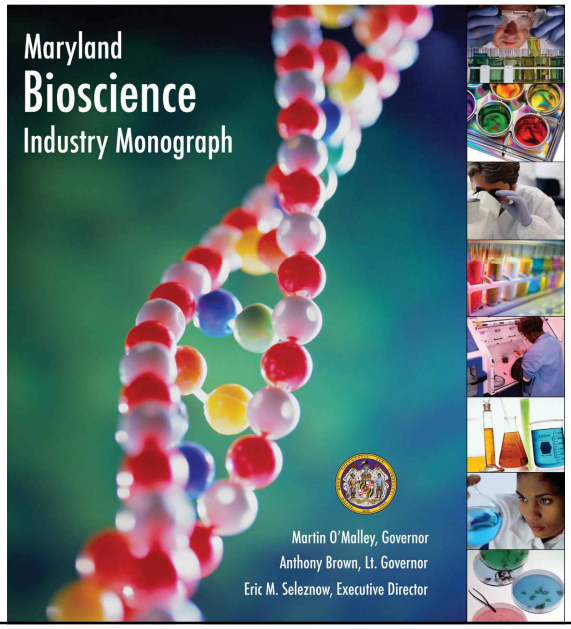
Charting New Directions



Maryland
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May 23, 2008

Overview

- Methodology
- Key Points from Committee Report
- Issues

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Methodology

- Gathered Research and Reports
- Invited Speakers and SMEs
- Conducted Surveys
- Prepared sub-committee reports
- Sought Committee Consensus

40 Publications, reports and surveys

- "Growth of U.S. Biotechnology Centers"
- "High Growth Industry Profile"
- "Biotechnology Industry Facts"
- "Bioscience in Greater Baltimore"
- "Unlocking Maryland's Biotech Potential"
- "Maryland's Bioscience Environment"

Prepared by national, state and local organizations

- Economic Alliance of Greater Baltimore
- Greater Baltimore Council
- MdBio
- Sage Policy Group
- The Brookings Institution
- Biotechnology Industry Organization
- U.S. Department of Labor
- And….

Maryland Department and Agencies

- Department of Business and Economic Development (DBED)
- Higher Education Commission (MHEC)
- Department of Labor, Licensing and Regulation (DLLR)
- State Department of Education (MDSE)
- GWIB

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Bioscience Subcommittees

- Industry Profile
- Workforce Profile
- Workforce Issues

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Industry Profile

- Bioscience Definition
- Maryland Companies
- Key Characteristics

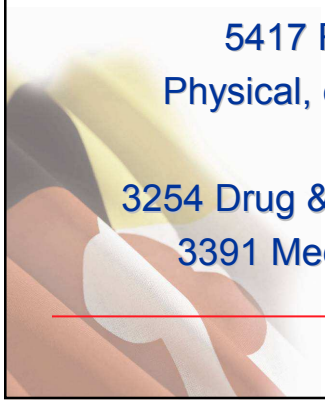
Definition - NAICS

North American Industrial Classification System

Bioscience

5417 Research & Development
Physical, engineering and life sciences

3254 Drug & Pharmaceutical Manufacturing
3391 Medical Devices Manufacturing



Bioscience Definition

A bioscience company is one that "is biology-driven, and its activity substantially involves research, development or manufacture of:

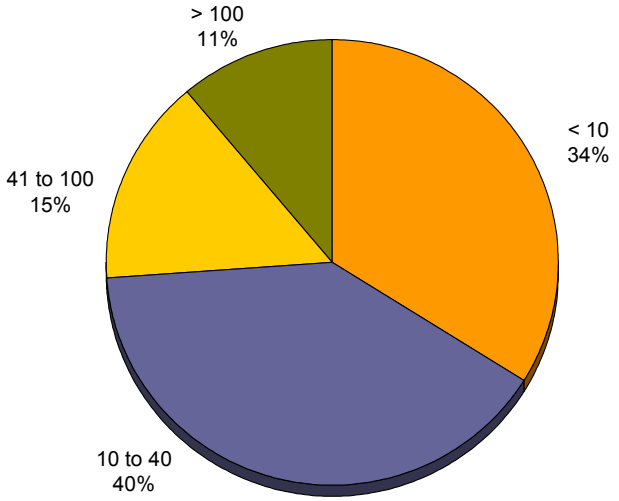
- ***Biologically active molecules***
- ***Devices that employ or affect biological processes,***
- ***Biological information or resources, or***
- ***Software designed specifically for biological applications."***

MdBio

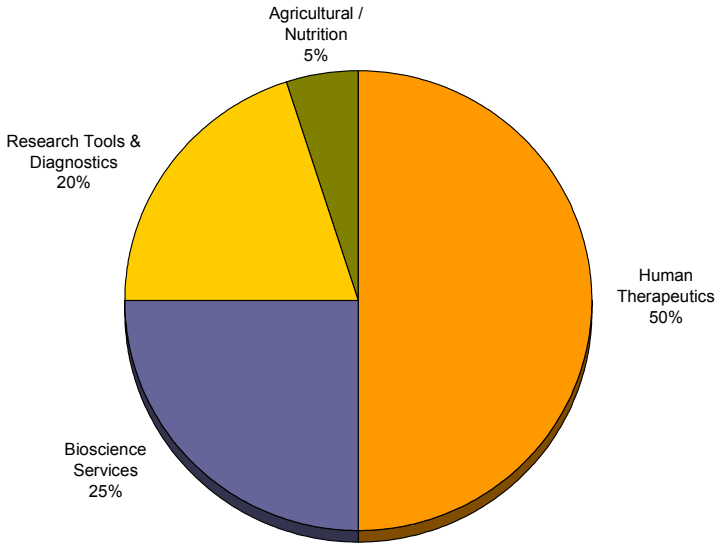
407 + or -

Small, homegrown companies

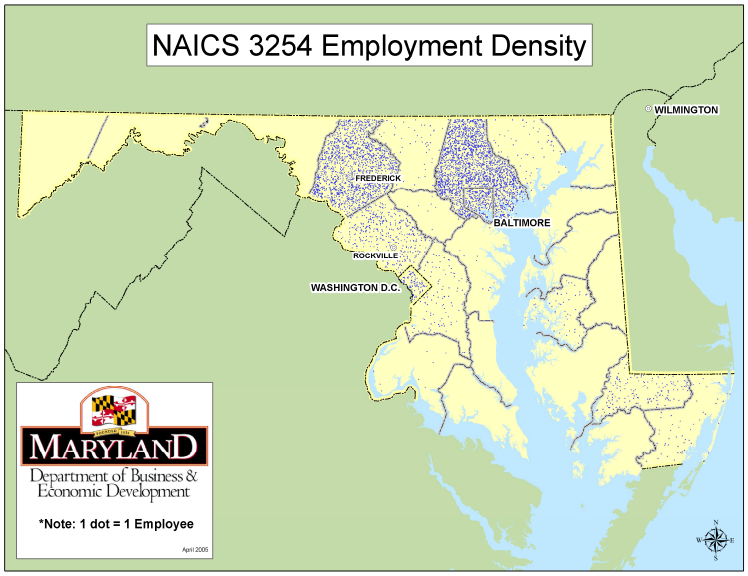
Maryland's bioscience companies, by number of employees



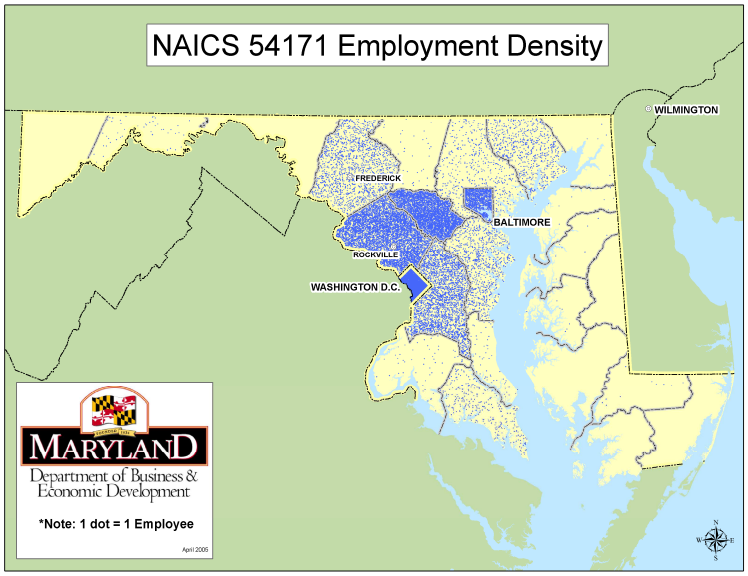
What do they do?



Where are they located?



Where are they located?



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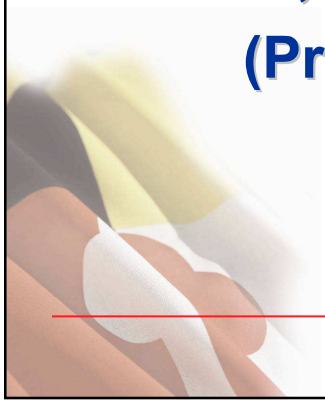
Workforce Profile

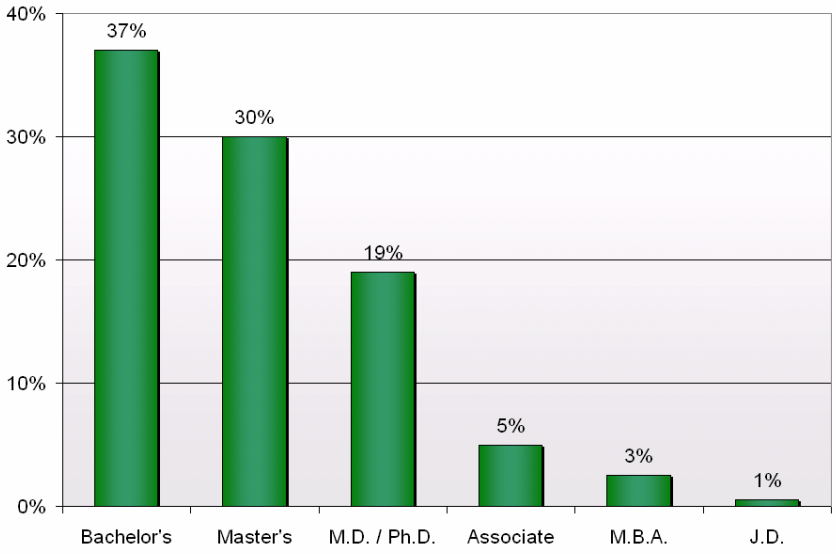
- Demographics
- High Demand Occupations
- Competencies

Bioscience Workforce

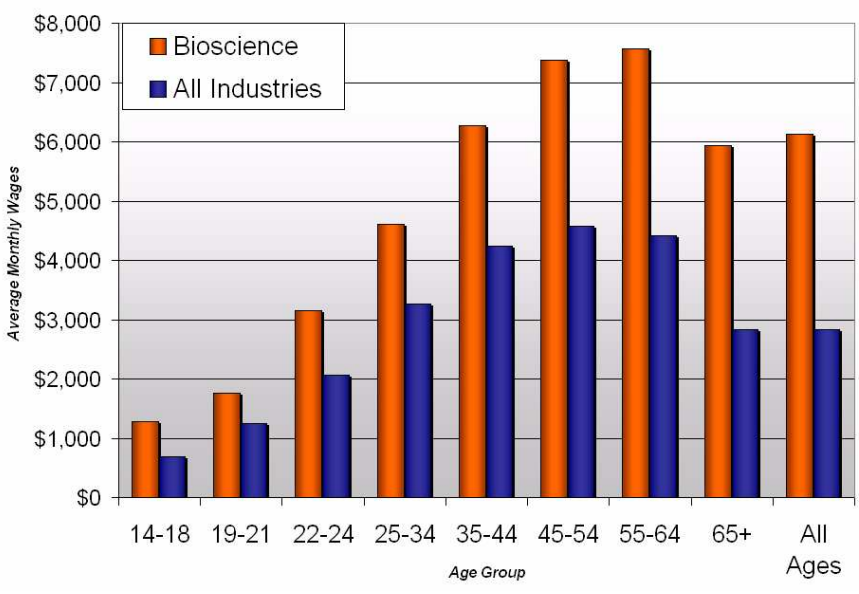
27,000 Employees
(Private Industry)



Highly Educated



Highly compensated



High Demand Occupational Families

- **Engineering and Science**
- **Manufacturing**
- **Legal and Regulatory**
- **Quality Assurance**

Engineering and Science

Executive Level

Top Clinical Research Executive
Top Experimental Medicine Executive
Top Clinical Safety and Drug Monitoring Executive
Second Level Discovery Research Executive (Site-Based)
Top Research and Development Executive

Supervisory Level
Engineering and Sciences-Multiple Functions
Program Manager

Engineering and Science

Technical Skill Level
Bio/Immuno Assay Development
Microbiology/Bacteriology
Biological Manufacturing-Pilot Plant
Biological Process-Cell Culture
Clinical Research Monitoring (CRA)
Chemistry-Analytical
Toxicology
Bioinformatics
Clinical Supplies/Packaging
Molecular Discovery/Development
Chemistry
Clinical Research
Biostatistics
Biology, Discovery
Laboratory Animal Care
Pharmaceutical Process Development
Clinical Research (M.D.)
Animal Pathology)

Focus on Competencies

- STEM
- Management Skills
- New Hard Soft Skills

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Workforce Issues

- Perception of Maryland
- Quality of Life
- Education and Training
- Attraction, Recruitment and Retention
- Workforce Forecast